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ABSTRACT

A case study in action research which forms part of the Junior Secondary Education Improvement Project, was designed to enable dissemination and permeation of approaches to comprehension of English to all levels of educational personnel in Botswana (Africa). The work supports the national goal of expanding and improving Junior-Secondary education as part of a provision of nine years basic education. Using a multiplier approach, the research serves to identify language comprehension levels and instructional needs, improve the quality of education, and increase the output of qualified personnel from the school system. A long-term aim is to develop a culturally appropriate reading test. It is argued that dissemination and permeation of new ideas and techniques to all levels of the education system is a key area in education personnel development. This is considered to be acute in developing nations, where needs for rapid development are hampered by shortages of skilled personnel and inaccessibility of interior regions. The latter frequently prevents effective dissemination and uptake of new approaches. The principle underlying the action research design is suggested as a strategy with wider applications. Preliminary findings are presented. (Author/CB)

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ACTION RESEARCH IN EDUCATION PERSONNEL DEVELOPMENT

A CASE STUDY IN BOTSWANA

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INTRODUCTION

In this paper, we outline some of the problems which confront Third World countries in developing education personnel, including the issue of dissemination and permeation of ideas and techniques in the development of education personnel in Botswana. We describe action research currently in progress and suggest that the underlying principle provides a strategy which has general application.

Throughout the world, the quality and quantity of education personnel has implications for social, economic and political development of nations. Central to such development, and to the individuals who constitute a society, is building an educational infra-structure for policy making, curriculum development and teacher training at initial and in-service levels. An educational system is designed to promote national goals for the development of skilled manpower and for the realisation of individual human potential. These general aims are shared world-wide, although priorities differ between countries.

In the developing Third World, basic infra-structures exist, although they vary in the degree of elaboration. There are, again, shared priorities. The provision of a universal Primary education system of buildings, curricula and materials, the development of teacher training and the improvement of national literacy levels are identifiably

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of first importance. Without these, the improvement of quality and quantity of life for a country's populace remains limited, since social and economic development depends upon the out-puts of its education system. The extent of recognition of the critical importance of education for national and individual development can be shown by the financial and other aid provided by donor countries to the Third World.

However, unlike the developed world, where Primary, Secondary and Tertiary systems have a longer history, the need for rapid construction of educational infra-structures, skilled manpower and a basic minimum of education and literacy for a country's citizens, have placed acute pressures on human and material resources. The speed of change necessitated by rapid development, brings pressure to provide schools, teachers, textbooks and curricula, and developing countries often have no choice but to use untrained teachers during their period of rapid expansion.

Dissemination and up-take of potentially successful approaches present particular problems in such countries where communication system of roads, postal services and telecommunications are themselves still developing. Often, the distances and remoteness of regions within-country add near insuperable difficulties to the task of basic educational provision. In particular, these factors militate against the improvement of teachers, trained or untrained, through in-service work. Without efforts to do so, however, teachers will continue to use rote teaching methods, which have no power to develop the critical thinking skills which are needed by a country's citizens if social and economic advance is to be made. Clearly, what happens in Primary schools has a cumulative effect. If literacy or numeracy is poorly established at Primary level, the input and output from Secondary and Tertiary institutions is limited in terms of attainments. Similarly, the availability of skilled citizens to occupy more senior positions in a

society is reduced, and most developing countries wish to promote localisation rather than continue to depend on expatriate skills. For example, at the University of Botswana, 50 percent of all academic staff and 80 percent of senior staff are currently expatriate. Further, in Southern Africa, where there is a rich abundance of raw materials and mineral resources, there is a desire to develop their processing capacities rather than perpetuate the export of raw materials. Since, as we argued earlier, these capacities are facilitated through education, the development of education personnel is a pressing need. We have also suggested that dissemination of information is of critical importance. Without up-grading of the quality of education, national goals can hardly be served.

Before relating the central theme of dissemination of ideas and techniques to the specific situation in Botswana, it is important to note that the developed world has not solved the issue of permeation at all levels of education personnel. Dissemination is but a first step in bringing about change and thus, in this context, developing education personnel. This first step implies communication of the awareness of new approaches, curricula or materials, and the United Kingdom experience serves to illustrate the associated problems. In the United Kingdom the Schools Council has attempted to develop new approaches to the curriculum. Mathematics, literacy, science, social studies, moral education, play, religious education, second language teaching, music, art and ways of developing communication skills are all areas addressed by the Schools Council for the education of Pre-school, Primary and Secondary pupils. Although it has now been disbanded, during its twenty year life, the Schools Council has left a legacy of publications in innovative approaches to the curriculum. If, however, teachers throughout the country were to be surveyed, it is unlikely that all would

be aware of the wealth of curriculum guidelines and materials developed by the Schools Council. Common sense indicates that teachers' awareness correlates with recency of training.

Nevertheless, knowledge of Schools Council work is not, sadly, synonymous with the use of new approaches and curricular materials. Although some of their projects have become better known and even tried out in schools, including those in the developing world, permeation has been superficial in the main. Distortion in use also often occurs, although this is not confined to United Kingdom or to School Council's work. One typical example, in Irion Jaya, Indonesia, the Dundee Mathematics scheme was being taught without practical application and with disastrous results (Davis 1983). The same applies to Nuffield materials and other schemes produced in the United Kingdom and the United States of America.

Most uptake of Schools Council projects has occurred when localised workshops involving practising teachers have been the method of project development. A particular example is the appraisals of children's spoken language by Tough (1977).

In the field of INSET in Austria an interesting approach using University of Klagenfurt support for independent learning is described by Posch (1986). Although Posch has attempted to gain active participation by teachers, he nevertheless notes difficulties of the gap between knowing and practical implementation.

The unexpressed intention of Schools Council and many other international and localised initiatives has been to use a multiplier approach, based on the concept of the 'critical mass' e.g. (Davis et al 1983 with the World Bank in Pakistan). This is where the balance is tipped in favour of a curriculum approach by the force of numbers involved and a dynamic new socialisation procedure gathers momentum. The underlying principle,

although more positively directed, is not dissimilar to the topological mathematical model of Catastrophe Theory. In this theory, qualitative change occurs from the dynamics operating on cumulative factors. The major issue is how to initiate and sustain momentum for positive change.

As indicated, world-wide there have been many such initiatives with literacy and science receiving particular attention. Literacy is argued to be the most pressing, since without basic literacy skills, millions of people throughout the developing world have no opportunity to improve their quality of life at the individual level, nor to contribute to their country's social and economic growth. The concepts of equality and justice are also most relevant. The imperative is great, but the rate of improvement has not matched the needs. The reasons are many and varied, but include the problems of dissemination and up-take as well as a key area of needs assessment. The problems, as they apply to Botswana as a case study, are now described, and the following section will outline a strategy for addressing them.

BACKGROUND

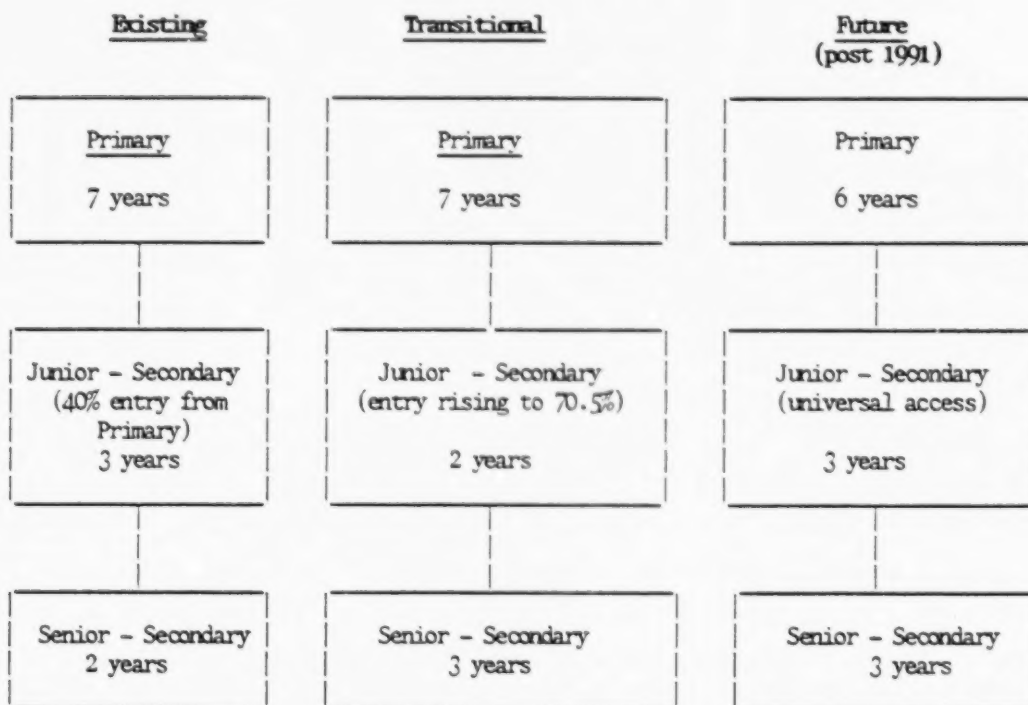
Botswana, a country of approximately the size of France, has currently a population of just over one million. This is growing fast, and Botswana has one of the highest fertility rates in Africa of 6.2% (Staugard 1985). At this rate, the population will more than double in 12 years. Large tracts of land are virtually uninhabited, e.g. in the Central Kalahari Desert and Okavango Delta. The population is concentrated in the capital, Gaborone, and in the major towns of Francistown, to the north, and Lobatse in the south. Communication systems are developing rapidly and major road routes are now tarred, but much of the country is accessible only through sand, in four wheeled drive vehicles, or by

charter flight. A telephone network now serves much of the country, although the more remote areas depend on radio links. Long periods of little or no rain afflict the country, which is currently in a sixth year of drought and, clearly, this reduces Botswana's ability to feed itself. Rainfall and soil type are sufficient only for about 5 percent of the land surface to be used for arable crops (Staugard 1985). It remains heavily dependent on its powerful neighbour, South Africa, for supplies, and on aid from donor countries. As noted earlier, Botswana also relies much on expatriate labour to fill many of the skilled and professional posts, although its aim is to localise as quickly as possible. Mogami (1987) indicates that by the end of this year the proportion of expatriates in the civil service will have dropped to $3\frac{1}{2}$ percent. It was 44 percent in 1972.

Hence, in spite of the problems which face Botswana, and which are exacerbated by its geographical and political position as a front-line state, progress has been rapid. Approximately, 85 percent of Primary aged children are in school, although double shifts operate because of shortage of classrooms. Beginning at 6.5 years, children receive 7 years of Primary education, and on average, 40 percent of Primary school leavers are able to enter Secondary school, if they pass the Primary School Leaving Examination. Currently, a full Secondary school course is of five years duration, with a Junior Certificate being taken at Form 3 level, and if a pass is obtained, continuation on to Forms 4 and 5, culminating in the taking of an overseas Cambridge School Certificate (United Kingdom). Entry into Teacher Training College, Polytechnic or University is dependent upon grades obtained at this stage, and the cut-off points are increasingly higher.

The present 7 - 3 - 2 system of education is undergoing change. During the lifetime of NDP VI National Development Plan), there will be transitional period 7 - 2 - 3 from 1986 towards a 6 - 3 - 3 system in 1991.

The existing, transitional and post 1991 future structures are shown diagrammatically:



Botswana thus has made immense progress in developing its education system in the 20 years since independence in 1966. Its education budget is generous (12.5 percent of National Recurrent Expenditure, Ministry of

Education 1984) and is a reflection of the importance placed on education. This is shown, too, by the well developed infra-structure of Ministry of Education Curriculum Development Units which produce text books and materials for use in the schools, identification of serving teachers for further training as future teacher trainers, and by attempts to provide in-service opportunities for trained and untrained teachers. District Councils administer the education system in their areas and distribute books and materials provided by the Ministry to their schools. Clearly, the efficiency with which this is done varies, as does the actual use of materials within the schools. Where-ever one goes, however, and every level within the education system, it is clear that an over-riding concern is the poor level of comprehension of English.

Prior to Standard 5 in the Primary school, the national language of Setswana is the medium of instruction, although some English lessons take place. From Standard 5, the pattern is reversed. By no means all children speak Setswana as a mother tongue, some have seKalanga, others Ndebele, or Xhosa. There are sizeable groups whose first language is Afrikaans, situated not only near the border with South Africa, but also well to the northwest from earlier migrations.

Poorly established English in the schools exerts an adverse influence on subsequent learning and in public life. Teachers themselves, particularly those who are untrained, are often not secure in using English as the medium of instruction. Although as a problem, it is more acute in the remote areas, the effects of poor comprehension and speaking of English become a vicious circle. Thus, their pupils are unlikely to acquire sound understanding and use of English and so a cycle of disadvantage is continued.

Considerable effort to break into the cycle is made. Intensive English programmes have been tried out, a National Literacy survey of post - school leavers has just been completed and there is no shortage of interest at all levels of education personnel. International aid, particularly from the United States of America (USA), funds a Primary Education Improvement Project, and USAID is the donor agency for the Junior-Secondary Education Improvement Project. In the latter, a consortium of USA universities, headed by Florida State University are supporting Botswana's efforts to develop its Junior - Secondary system of education. The assistance for Botswana is just one of a series of projects in 10 countries in Africa, Asia and Caribbean under the heading of 'Improving the Efficiency of Educational Systems' (IEES). The brief for each of the countries being supported by IEES has been worked out by consultations between IEES personnel and specific Governments. In Botswana, the priorities are two-fold, and are (1) to increase the quality and quantity of the expanded basic (junior - secondary) education system and (2) to institutionalise the capacity to develop, manage and support the junior - secondary system.

The strategies for realising these aims are:

- a. Improved ministry of Education organisational structure and staff skills to manage the junior secondary system;
- b. Strengthened Curriculum Development and Evaluation (CD/E) Unit;
- c. Trained Ministry of Education staff in management information techniques for continuous assessment and improvement of the system;
- d. Improved inservice program to support the new junior - secondary instructional program;
- e. Improved pre-service program to support the new instructional program;
- f. Training workshops for inspectors, education officers, and headmasters on implementing the revised instructional program;

- g. Effective procedures established for procuring and distributing instructional materials including teacher guides;
- h. CD/E Unit constructed;
- i. Six Education Centers for in-service training constructed.

The case study in action research, which is now reported, forms part of the Junior Secondary Education Improvement Project (J.S.E.I.P). It has been designed to enable dissemination and permeation of approaches to comprehension of English to all levels of educational personnel within Botswana.

CASE STUDY IN ACTION RESEARCH - COMPREHENSION OF ENGLISH

Rationale

The implementation of the Government of Botswana's NDP VI will provide all pupils with 9 years of basic education. A large number of pupils will thus be brought into the education system who would otherwise have left school after the end of Primary Standard 7. To meet the demand for teachers able to work with Junior - Secondary pupils, the newly opened Molepolole College is training teachers. Primary teacher training undertaken at Francistown, Lobatse, Serowe and Tlokweng Colleges, although the University of Botswana is also involved in Primary as well as Secondary school teacher training. Considerable efforts and advances have been made in developing new curricula and materials to implement educational provision at Primary and the developing Junior-Secondary levels.

As stated earlier, a key area in developing an educated citizenry is language proficiency. Methods of judging success, however, are not well developed. Reading, an aspect of language proficiency, is more than the ability to 'decode' print. The reader needs to comprehend the printed message if he/she is to learn from the new curriculum being developed for use in Primary and Junior-Secondary schools across all subject areas. Curriculum, texts and materials should reflect the language proficiency of the pupils and, where this is deficient, instructional support should be provided. Teachers require training (initial and inservice) into effective methods of enabling pupils to read with understanding. Thus the issue of language proficiency exerts an effect on all levels of the education system and, ultimately, on the ability of Government to meet the aims of NDP VI.

No techniques are currently being used in Botswana, nor indeed in most developing countries, to assess the efficiency of reading behaviour. There is, however, concern for the apparently low levels of English Comprehension and this has been identified also by Moon Hamblett (1977) and, more recently, by Keatimilwe and Komarek (1985). Further, no culturally appropriate standardized reading test is available for use in Botswana. Detailed information is thus lacking, and the action research aims to provide much needed information.

Aims of Action Research

- 1) Development of procedures for assessing English Language proficiency, using Miscue Analysis, Cloze, and Retelling; development includes a pilot phase and preliminary report to JSEIP, Ministry of Education, and University of Botswana representatives

- 2) Needs assessment of English Language Comprehension in Standards VI and VII (Primary) and Form I (Junior - Secondary) pupils
- 3) Identification of procedures for use in pre-service and in-service teacher training programmes in diagnostic and instructional systems
- 4) Contribute to institutional capacity to develop, manage, and support the Junior - Secondary system of education, through:
 - ° Identification and training of national counterpart to Project Director, to be designated as Project Coordinator
 - ° Identification and training of Research Associates
 - ° Identification and training of serving teachers (Project Associates) to carry out testing of pupils in each area
 - ° Recommendations for national policy regarding curriculum development, text books and materials, training needs, and remediation
- 5) To provide a basis for standardised reading test development from data and results of the Project, through:
 - ° provision of base-line data for further development of standardised reading tests
 - ° Dissemination of Project outcomes through presentation of reports and through meetings/workshops with: University of Botswana, JSEIP, and Ministry of Education personnel, representatives of the Unified Teaching Service, Education Officers (local districts), TTC staff, and Head Teachers and classteachers.

Design of the Action Research Project

Three phases of the project are identified:

Phase I - Pilot Phase

Duration - 2 months

- 1) Identification and training of national counterpart to Project Director, to be designated as Project Co-ordinator
- 2) Identification and training of Research Associates
- 3) Development of testing instruments - Miscue Analysis
Re-telling
Cloze Procedure
- 4) Development of protocols for testing and establishment of inter-scorer reliability
- 5) Field work in Gaborone - testing of sample representative of Standards 6 and 7 and Form 1 pupils. 30 pupils of equal numbers of boys and girls will be selected from each Standard/Form, using a table of random numbers. Total sample = 90 pupils.
- 6) Analysis of results, preliminary reporting to JSEIP, Ministry of Education and University of Botswana.

Phase II - Main Phase

Duration - 6 months

- 1) Identification of 5 further areas to provide nationally representative locations for field work. This overlaps with Phase I.
- 2) Identification and training of serving teachers (Project Associates) to carry out testing of pupils in each area (not in own school). Training includes establishment of inter-scorer reliability.
- 3) Field work - testing of 30 pupils of equal numbers of boys and girls selected from each Standard/Form, using a table of random numbers. Total sample = 450 pupils.

Note: (2) and (3) will take place in sequence. Project Director, Project Co-ordinator and Research Associates will visit each area in turn to establish Project, supervise and co-ordinate work. Total time needed for field work is 15 weeks.

- 4) Statistical and qualitative analysis of results.

Phase III - Report and Outcomes

Duration - 4 months

- 1) Report preparation
 - a) Results of Needs Assessment of English Language proficiency (comprehension) of total sample of 630 pupils.
 - b) Identification of procedure for use in pre-service and in-service teacher training programmes - diagnostic and instructional systems.
 - c) Recommendations for national policy - curriculum development, text books and materials, training needs, remediation.
 - d) Provision of base-line data for further Project to develop standardised reading test for Botswana.
- 2) Dissemination of outcomes through presentation of report and through meetings/workshops with University of Botswana, JSEIP, Ministry of Education personnel, Unified Teaching Service, Education Officers (local districts) TTC staff, Headteachers and classteachers.

Results

The work is still in progress and thus detailed results are not yet available. From preliminary analysis of available data, it would appear that the miscues made by pupils are such that both quantity and type lead to a substantial loss of meaning. Many pupils, even in the selective secondary system, appear to be reading at a frustration level i.e.. they do not appear to be comprehending the texts. Clearly, their absence of

comprehension reduces their ability to learn across the curriculum and they are unlikely to gain the kind of enjoyment from reading which is needed for further personal development.

IMPLICATIONS OF THE ACTION RESEARCH

The strategy adopted in the action research carried out into levels of comprehension, is proving to be a useful approach to the problem of dissemination and permeation. A serious problem concerning comprehension of English language, has been addressed through the use of the action research model outlined. Thus, the results will be of value throughout the education system and facilitate the aims of Government in its desire to increase the output of trained local personnel as part of national development.

The design of the action research has meant that all levels of education personnel have been involved in a collaborative exercise towards a common goal. For example, the Ministry of Education - In-service - has arranged for the release of teachers to assist with the field work in each of the areas visited during the action research.

For reasons of geographical position, three of the areas, Gomare, Ghanzi and Kang, are among the most remote in Botswana. The opportunity for input of new approaches or for these to have any real impact, in the normal course of events, is inevitably limited by distances and by the desert terrain. Through the active involvement of teachers and local District Education Officers, combined with further visits by the project team to run workshops on diagnosis of reading behaviour and in instructional systems designed to assist comprehension, it is expected that teaching skills will be directly improved. At all levels, the increased knowledge and understanding of the reading process and what

pupils can, or cannot do, should gradually improve the quality of education provided through a gathering momentum towards the desired critical mass.

CONCLUSION

A case study in action research in Botswana has been described in the specific context of comprehension of English language. Through it, there has been development of existing education personnel, research capacity has been strengthened through the training and involvement of Botswana and, in the longer term, a more literate citizenry is likely to emerge. Thus, national goals are served.

In Botswana, one priority is the expansion of the education system and with it, the need to improve the comprehension skills of the new Junior-Secondary school population. Other countries, as stated in the introduction, have different priorities, but we suggest that the design of the action research being carried out in Botswana provides a strategy applicable to a variety of within-country situations.

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